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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,934	06/27/2001	Christopher G. Matthews	PKR 2 0679 US	6286

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EXAMINER

SUNG, CHRISTINE

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicant No.	Applicant(s)
	09/893,934	MATTHEWS ET AL.
	Examiner	Art Unit
	Christine Sung	2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 June 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 1-12 is/are allowed.
- 6) Claim(s) 13, 14 and 20 is/are rejected.
- 7) Claim(s) 15-19 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 27 June 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) Interview Summary (PTO-413) Paper No(s) _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 18 and 19 are objected to because of the following informalities: Claims 18 and 19 both disclose “the figure of merit” but is not defined in the independent claim 14, and therefore lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Berlad (US Patent 6,140,650).

Regarding claim 13, Berlad discloses a method of imaging comprising coincidence detecting radiation events (column 4, lines 47-48) with a plurality of detectors (column 2, lines

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10-14); calculating correction factors that correct for mechanical misalignment of the detector heads from the coincidence detected calibration source radiation (column 4, lines 26-48); correcting the image data with the correction factors (column 9 line 40); and reconstructing the corrected image data into an image representation (column 10, letter g). Further, the image data is in response to radiation collected with the detector heads.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berlad (US Patent 6,140,650).

Regarding claim 14, Berlad discloses a plurality of detectors (column 2, lines 10-14), the acquisition of data from the detectors (abstract); the determination of calibration factors for correcting data (Column 10, letter g); and calculating calibration parameters by minimization algorithm that includes optimizing fitting parameters with acquired data (Column 10, lines 10-11). Although Berlad does not specifically disclose the use of a data memory, calibration memory, or processor to communicate the calibration memory to the data memory, it is inherent that they contain the aforementioned devices, for it indicates processing and saving of data. It is further obvious that the detectors are placed in a gantry or some sort of housing because Berlad gives free range as to what type of system to be used, and his only requirement the detectors

have the ability to rotate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the conventional setup, which is a gantry.

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berlad (US Patent 6,140,650) in view of DiFilippo et al. (US Patent 5,793,045).

Berlad discloses the limitations set forth in 14, but fails to specifically address the removal of measured data about radiation events whose energy is outside a pre-selected energy range. DiFilippo et al. discloses an energy discriminator that determines whether radiation falls within a specified energy window (abstract). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the discriminator disclosed by DiFilippo et al. with the invention disclosed by Berlad in order to create a data set with greater accuracy, as the radiation that falls outside a selected energy range represents the unwanted or erroneous data set.

Allowable Subject Matter

8. Claims 1-12 are allowed.

9. Claims 15-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 1-12, 15-17, none of the prior art of record discloses generating a figure of merit characterizing the apparent size of the point radiation source based upon the LORs. Although, references such as Berlad (US Patent 6,140,650) disclose generating an image

characterizing the location of the point source, it does not disclose characterizing the size of the source.

Regarding claims 18 and 19, none of the prior art of record discloses the specific generation of the figure of merit, namely that it is generated by summing the square of a distance of closest approach of each LOR to a spatial point and that it is generated by obtaining a crossing point of each pair of LORs and calculating the variance of the crossing points.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. US Patent 6,294,788-This reference discloses many of limitations, but contains a common assignee.
- b. US Patent 5,900,636- This reference discloses a method of correcting data acquired from a PET.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 703-305-0382. The examiner can normally be reached on Monday- Friday 7-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-0956 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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April 16, 2003



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